WHAT IS CLAIMED IS:

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1. An apparatus for calculating an electromagnetic field intensity, comprising:

a virtual current calculator that calculates a virtual current vector

from a voltage vector and a mutual immittance matrix of an object
including a wave source where a wave source power is applied, the
voltage vector and the mutual immittance using a wave voltage of the
wave source as a unit voltage;

a wave source input impedance calculator that calculates an input impedance of the wave source based on a virtual wave source current of the virtual current vector and a unit voltage of the wave source;

a wave source voltage calculator that calculates the wave source voltage based on the input impedance and the wave source power;

a current calculator that calculates a current vector based on the wave source voltage calculated and the virtual current vector; and

an electromagnetic field intensity calculator that calculates an electromagnetic field intensity around the wave source, the wave source power being determined based on the current vector.

2. A method of calculating an electromagnetic field intensity, comprising:

calculating a virtual current vector from a voltage vector and a mutual immittance matrix of an object including a wave source where a

wave source power is applied, the voltage vector and the mutual immittance using a wave voltage of the wave source as a unit voltage; and

calculating an input impedance of the wave source based on a

virtual wave source current of the virtual current vector and a unit

voltage of the wave source;

calculating the wave source voltage based on the input impedance and the wave source power;

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calculating a current vector based on the wave source voltage calculated and the virtual current vector; and

calculating an electromagnetic field intensity around the wave source, the wave source power being determined based on the current vector.

15 3. A computer program product including computer executable instructions stored on a computer readable medium, wherein the instructions, when executed by the computer, cause the computer to perform:

calculating a virtual current vector from a voltage vector and a mutual immittance matrix of an object including a wave source where a wave source power is applied, the voltage vector and the mutual immittance using a wave voltage of the wave source as a unit voltage; and

calculating an input impedance of the wave source based on a virtual wave source current of the virtual current vector and a unit

voltage of the wave source;

calculating the wave source voltage based on the input impedance and the wave source power;

calculating a current vector based on the wave source voltage 5 calculated and the virtual current vector; and

calculating an electromagnetic field intensity around the wave source, the wave source power being determined based on the current vector.

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